ADDITIONAL NOTES ON MELANIC SPECIMENS OF THE SILVER-WASHED FRITILLARY (*ARGYNNIS PAPHIA* L.) IN NORTH DORSET.

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AN EARLIER article (Barrington, 1989) discussed the relation between maximum daily temperature at the time of pupation of *A. paphia* and the subsequent capture of melanic aberrations. A clear correlation was found suggesting that such aberrations are due to unusual heat acting on the newly formed pupa. The last year referred to in the previous article was 1986. The present contribution covers the exceptional summer of 1989.

The 1989 season

Nineteen-eighty-nine was remarkable for the continuously higher than average temperatures and lack of rainfall, although the record-breaking heat of 1976 was not matched. In North Dorset *paphia,* which had been represented by fewer specimens in 1987 and 1988, did well in 1989. The warm weather brought *paphia* out a week to ten days early and the whole season for this species was over very quickly (in about ten days), presumably due to the high levels of activity in the heat, and the shortage of nectar-giving plants which were badly affected by the very dry conditions. Two melanic forms were found, both extreme.

The 8th July was a very close, hazy day. Most *paphia* were freshly emerged and fair numbers were seen feeding on thistles (much of the bramble flower was already over or dried up). A very dark specimen was seen landing on a thistle some distance away and was successfully captured. It proved to be an extreme male ab. *nigricans* Cosm. (fig. 1). The following day was cooler and breezy. At a nearby location Ross Young saw, perched high on a bramble bush, a melanic specimen which evaded capture as his net snagged on a thorn, but was seen and captured from the same spray the next afternoon. This was a fine male ab. *confluens* Spuler (fig. 2); both specimens were in perfect condition. No further aberrations were seen.

Results: In accordance with the format in the previous study, daily, maximum shade temperatures in degrees centigrade (for June and early July) are given in Table 1. All days above 21°C are marked with a ●. Previously, the period during which pupation would have occurred was taken as 23 - 33 days prior to capture of aberrations in newly-emerged condition. Applying this to the 1989 specimens gives pupation dates of 5th -16th June. This includes five days (the last five days of the period) above 26°C. Given the generally high temperatures subsequent to 16th June, during which the insects would have been in the pupal stage, it is likely that this stage would have been shorter than normal. In this case pupation could have taken place any time during the spell of exceptionally hot weather from 12th - 20th June.

JUNE 1989			
Date	*Temp.*	*Date*	*Temp.*
1	14	20	● 30
2	16	21	● 23
3	15	22	● 24
4	17	23	● 25
5	16	24	● 25
6	14	25	● 23
7	17	26	● 23
8	14	27	18
9	19	28	16
10	19	29	19
11	● 21	30	● 21
12	● 26	JULY 1989	
13	● 26	1	18
14	● 26	2	● 22
15	● 28	3	● 25
16	● 27	4	● 27
17	● 28	5	● 28
18	● 28	6	● 27
19	● 29	7	19

Table 1. Daily maximum shade temperatures. Marked days indicate temperatures in excess of 21°C.

As with the results of the earlier article it can be seen that capture of melanic specimens of *paphia* was preceded by a spell of unusually high temperatures over the period when the larvae would be pupating.

It is of interest that, by keeping an eye on daily temperatures and making an estimate of how early the *paphia* season would be, we estimated the weekend (collecting time being largely restricted to weekends) when melanics might be expected to occur, if at all. The two specimens were observed over the predicted weekend and none thereafter. Whilst such a prediction requires more than a little luck it does suggest that following the weather patterns may be an aid to entomologists interested in variation in this species (and doubtless other Nymphalid species and some Lycaenids, particularly *Lysandra coridon* Poda, in which similar temperature-related bursts of variation have been noted (Russwurm, 1976 a and b)).

Acknowledgements

I am grateful to Ross Young for allowing me to photograph another fine aberration and to Dave Vincent, Mary Clacy and Dan Hodgson who each supplied sets of temperature records for this study.

Fig. 1. *Argynnis paphia*. Male ab *nigricans* Cosm.
Top: upperside, bottom: underside. North Dorset 8.7.1989 (RDGB).

Fig. 2. *Argynnis paphia*. Male ab *confluens* Spuler.
North Dorset 10.7.1989 (R. Young).

References

Barrington, R.D.G., 1989. Melanic aberrations of the Silver-washed Fritillary (*Argynnis paphia* L.) in North Dorset in 1986, and the relevance of temperature on the occurrence of such forms in the wild. *Entomologist's Rec. J. Var.* **101**: 267-274.

Russwurm, A.D.A., 1976a. Variation in *Lysandra coridon* Poda (Lep.: Lycaenidae). Summer 1975. *Entomologist's Rec. J. Var.* **88**: 81.

— , 1976b. Aberrations of *Lysandra coridon* Poda (Lep.: Lycaenidae) and other species. Summer 1976. *Entomologist's Rec. J. Var.* **88**: 305.

Corrections:

From the previous article on *paphia* two errors require correction. On page 267, line 4, read 1918/19 between 1881 and 1941. Page 267, line 31, instead of (0 - 20°C) read (0 - minus 20°C).

Rothamsted farmland light trap network: interesting Lepidoptera records for August 1990.

Continuing our monthly reports of unusual Lepidoptera from the network of light traps operating on the Rothamsted Estate, the following are particularly noteworthy for August 1990:

Five individuals of *Drepana cultraria* Fabr. were caught during the first half of August. This species has not previously been recorded on the Estate. Interestingly, the first brood was absent from the traps.

Extra broods were a notable feature of the August records, probably resulting from the unusually hot, dry summer. *Asthena albulata* Hufn. and *Idaea subsericeata* Haw. were caught on the 4th and 5th and 18th respectively. Both are known to produce occasional second broods in southern England. A single *Hydrelia flammeolaria* Hufn. was caught on the 3rd. This species is usually univoltine, flying in June and early July. It is possible that this individual represents a partial second emergence. A few individuals of *Ectropis bistortata* Goeze were caught in some of the traps during the last week of August. The normally expected first and second broods are clearly represented at some sites between mid-March and mid-May and mid-June and the end of July. These late captures appear to represent a partial third brood.

A few known migratory species were recorded. These include *Agrotis ipsilon* Hufn., *Autographa gamma* L. (including f. *gammina* Stdgr.), *Peridroma saucia* Hb., *Nomophila noctuella* D. & S., and *Udea ferrugalis* Hb. Also, a specimen of *Eupithecia nanata* Hb. was caught on the 20th. There is no apparently suitable habitat for this species in the immediate vicinity, and it is possible that this individual originated from cultivated heathers in gardens surrounding the farm.— ADRIAN M. RILEY and MARTIN C. TOWNSEND, AFRC Farmland Ecology Group, Department of Entomology & Nematology, Rothamsted Experimental Station, Harpenden, Herts AL5 2JQ.